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07/05/2006 11:16 FAX 415 836 2501 DLAPRGC US LLP Express Mail: EV 840 302 505 US, Filed February 22, 2002, Page 1 of 10 Inventors: Lori CLARKE, et al. for NOVEL VECTOR CONSTRUCTS Attorney: Linda R. Judge, 415-836-2586; Atty. Docket: 3802-162-27

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CTTATCGATACCGTCGAAACTTGTTTATTGCAGCTTATAATGGTTACAAATAAAGCAATAGCAT **ATGTATCTTATCATGTC CLEAVAGE SITE**

AAUAAA В. GCA

C. GCAAAAAAAAAAAAAAAAAAAAAA

UPSTREAM AND DOWNSTREAM CLEAVAGE-POLYADENYLATION ELEMENTS

Fig. 1

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Inventors: Lori CLARKE, et al. for NOVEL VECTOR CONSTRUCTS
Attorney: Linda R. Judge, 415-836-2586; Atty. Dock

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09	120	081	240	300	360	420	480	540	009			
GGGGTGGAGT	GCGGAAGTGT	GAC G TETTTG	TTTTCGCGCG GTTTTAGGCG GATGTTGTAG	TAAGATTTGG CCATTTTCGC GGGAAACTG AATAAGAGGA	TATTIGICIA GGGCCGCGGG	CTCAGGTGTT TTC CGC GTTC	TGTAGTGTAT Box	TCC GAG CCGC 540	TTACCGAAGA			
TGATAATGAG	TGGGAACGGG GCGGGTGACG TAGTAGTGTG GCGGAAGTGT	GCGACGGATG_TGGCAAAAGT GACGTTTTTG	GTTTTAGGCG	G GGAAAACTG X	TATTTGTCTA	CTCAGGTGTT		AGTTTTCTCC	GGAGGTGTTA			
GAAGCCAATA TGATAATGAG	ITR 4 GCGGGTGACG	GCGACGGATG		CCATTTTCGC XXXXXXX	TAGCGCGTAA ++++	AGGTGTTTTT	TCAGCTGACG	TCTTGAGTGC CAGCGAGTAG	TATCTGCCAC	Ar6		Ars
ATTTTGGATT	TGGGAACGGG	ACACATGTAA	GAAGTGACAA	TAAGATTTGG	GTGTTACTCA	GTTTACGTGG AGACTCGCCC AGGTGTTTTT +++++	ATTATTAG	TCTTGAGTGC	TGAGACATAT	∀ ∀ dl 103-551	V V dl 189-551	✓ dl 357-551 ArS
				TAAATTTGGG CGTAACCGAG	GAATAATTTT +++ ++ ++++	GTTTA CGTGG +++++	TIGGCGTITT	AAGAGGCCAC	TCCGACACCG GGACTGAAA A TGAGACATAT		\triangleright	
CATCATCAAT AATATACCTT	TIGIGACGIG GCGCGGGCG	GATGTTGCAA GTGTGGCGGA	GTGTGCGCCG GTGTACACAG	TAAATTTG GG +++++++	AGTGAAATCT GAATAATTTT •••++++++++	GACTTTGACC ++++++++++	CGGGTCAAAG	TGAGTTCCTC	TCCGACACCG	 Enhancer elements 	X E2F-motif	+ Packaging elements

Color

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1 CATCATCAATAATATACCTTATTTTGGATTGAAGCCAATATGATAATGAGGGGGTGGAGT -----ITR----121 CGATACCGTCGAAACTTGTTTATTGCAGCTTATAATGGTTACAAATAAAGCAA†AGCATC -----polyA-----181 ACAAATTTCACAAATAAAGCATTTTTTTCACTGCATTCTAGTTGTGGGTTTGTC¢AAACTC -----polyA-----241 ATCAATGTATCTTATCATGTCTGGATCCGCGCCGCTAGCGATCATCCGGACAAAGCCTGC 301 GCGCGCCCGCCCATTGGCCGTACCGCCCCGCGCCCCCCATCTCGCCCTCG -----E2F-1 PROMOTER-----361 CCGCCGGGTCCGGCGTTAAAGCCAATAGGAACCGCCGCCGTTGTTCCCGTCACGGCCG -----E2F-1 PROMOTER-----421 GGGCAGCCAATTGTGGCGGCGCTCGGCGGCTCGTGGCTCTTTCGCGGCAAAAAGGATTTG -----E2f-1 PROMOTER-----------E2f-1 PROMOTER-----541 CCCTCGATGATATCAGATCATCGGATCCCGGTCGACTGAAAATGAGACATATTATCTGCC 601 ACGGAGGTGTTATTACCGAAGAAATGGCCGCCAGTCTTTTGGACCAGCTGATCGAAGAGG ---**--**----E1A GENE-----661 TACTGGCTGATAATCTTCCACCTCCTAGCCATTTTGAACCACCTACCCTTCACGAACTGT ----<u>--</u>----<u>-</u>E1a GENE------721 ATGATTTAGACGTGACGGCCCCCGAAGATCCCAACGAGGAGGCGGTTTCGCAGATTTTTC -----E1A GENE----781 CCGACTCTGTAATGTTGGCGGTGCAGGAAGGGATTGACTTACTCACTTTTCCGCGGGCGC 841 CCGGTTCTCCGGAGCCGCCTCACCTTTCCCGGCAGCCGAGCAGCCGGAGCAGAGCCT ---**--**----E1A GENE-----Fig. 3A

07/05/2006 11:17 FAX 415 836 2501 DLAPRGC US LLP Page 4 of 10 Inventors: Lori CLARKE, et al. for NOVEL VECTÓR CONSTRUCTS Attomey; Linda R. Judge, 415-836-2586; Atty. Docket: 3802-162-27 4/10 -----E1a GENE----------961 CTGGCTTTCCACCCAGTGACGACGAGGATGAAGAGGGGTGAGGAGTTTGTGTTAGATTATG -----E1a GENE-----1021 TGGAGCACCCCGGGCACGGTTGCAGGTCTTGTCATTATCACCGGAGGAATACGGGGGACC -----E1a GENE-----1081 CAGATATTATGTGTTCGCTTTGCTATATGAGGACCTGTGGCATGTTTGTCTACAGTAAGT -----E1a Gene--------1261 TGAACCTGAGCCTGAGCCCGAGCCAGAACCGGAGCCTGCAAGACCTACCCGCCGTCCTAA -----E1a GENE-----1321 AATGGCGCCTGCTATCCTGAGACGCCCGACATCACCTGTGTCTAGAGAATGCAATAGTAG -----E1a GENE----1381 TACGGATAGCTGTGACTCCGGTCCTTCTAACACACCCCTGAGATACACCCCGGTGGTCCC 1441 GCTGTGCCCCATTAAACCAGTTGCCGTGAGAGTTGGTGGGCGTCGCCAGGCTGTGGAATG -----E1a GENE------1501 TATCGAGGACTTGCTTAACGAGCCTGGGCAACCTTTGGACTTGAGCTGTAAACGCCCCAG ------E1a GENE----------E1a GENE-----1621 TGATGTAAGTTTAATAAAGGGTGAGATAATGTTTAACTTGCATGGCGTGTTAAATGGGGC 1681 GGGGCTTAAAGGGTATATAATGCGCCGTGGGCTAATCTTGGTTACATCTGACCTCATGGA -----E1b GENE-----1741 GGCTTGGGAGTGTTTGGAAGATTTTTCTGCTGTGCGTAACTTGCTGGAACAGAGCTCTAA ----E1b GENB-------. 1801 CA Fig. 3B

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33881	AACCTACGCCCAGAAACGAAAGCCAAAAAACCCACAACTTCCTCAAATCGTCACTTCCGT
33941	TTTCCCACGTTACGTCACTTCCCAT <u>TTTAATTAA</u> GAATTCTA <u>CAATTCCCAACACA</u> CATACA
34001	AGTTACTCCGCCCTAAAACCCTGGGCGAGTCTCCACGTAAACGGTCAAAGTCCCCGCGGC +- PACKAGING SIGNAL
34061	CCTAGACAAATATTACGCGCTATGAGTAACACAAAATTATTCAGATTTCACTTCCTCTTA
34121	TTCAGTTTTCCCGCGAAAATGGCCAAATCTTACTCGGTTACGCCCAAATTTACTACAACA
34181	TCCGCCTAAAACCGCGCGAAAATTGTCACTTCCTGTGTACACCGGCGCACACCAAAAACG
34241	TCACTTTTGCCACATCCGTCGCTTACATGTGTTCCGCCACACTTGCAACATCACATCCC
34301	GCCACACTACTACGTCACCCGCCCCGTTCCCACGCCCCGCGCCACGTCACAAACTCCACC +ITRITR
34361	CCCTCATTATCATATTGGCTTCAATCCAAAATAAGGTATATTATTGATGATG

Fig. 3C

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1 CATCATCAATAATATACCTTATTTTGGATTGAAGCCAATATGATAATGAGGGGGGTGGAGT 61 TTGTGACGTGGCGCGGGGCGTGGGAACGGGGCGGGTGACGTAGGGCGCGCCGCTACCGAT 121 ATCGGATCCCGGTCGACTGAAAATGAGACATATTATCTGCCACGGAGGTGTTATTACCGA -----E1à -----181 AGAAATGGCCGCCAGTCTTTTGGACCAGCTGATCGAAGAGGTACTGGCTGATAATCTTCC ----- E1a-----241 ACCTCCTAGCCATTTTGAACCACCTACCCTTCACGAACTGTATGATTTAGACGTGACGGC -----E1d-----E1d-----301 CCCCGAAGATCCCAACGAGGAGGCGGTTTCGCAGATTTTTCCCGACTCTGTAATGTTGGC 361 GGTGCAGGAAGGGATTGACTTACTCACTTTTCCGCCGGCGCCCCGGTTCTCCGGAGCCGCC 421 TCACCTTTCCCGGCAGCCCGAGCAGCCGGAGCAGAGAGCCTTGGGTCCGGTTTCTATGCC ----- E1a ------541 CGACGAGGATGAAGAGGGTGAGGAGTTTGTGTTAGATTATGTGGAGCACCCCGGGCACGG ----- Eld ------601 TTGCAGGTCTTGTCATTATCACCGGAGGAATACGGGGGACCCAGATATTATGTGTTCGCT

Fig. 4

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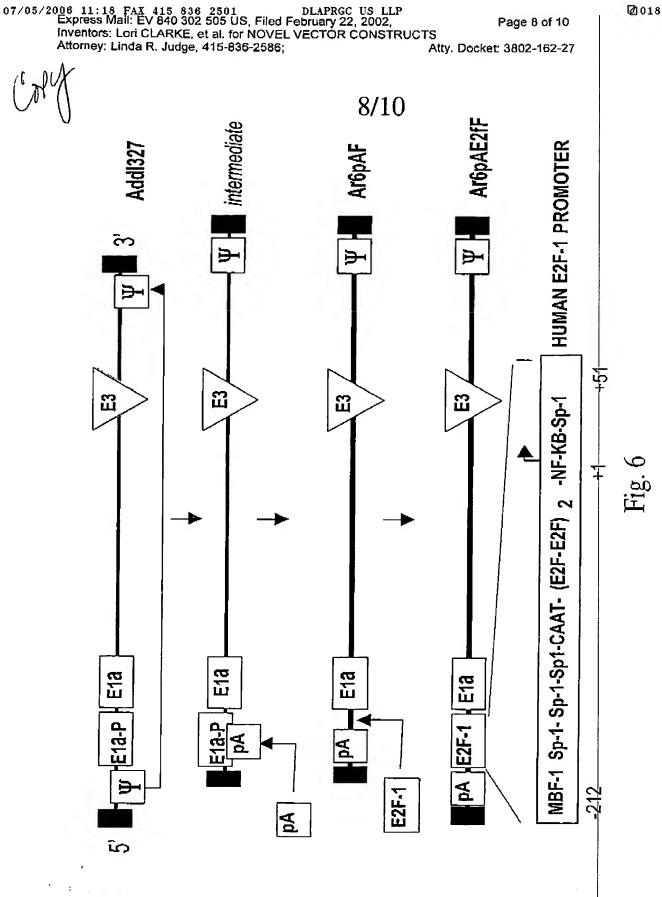
Attorney: Linda R. Judge, 415-836-2586;

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1 CATCATCAATAATATACCTTATTTTGGATTGAAGCCAATATGATAATGAGGGGGTGGAGT 61 TTGTGACGTGGCGCGGGGCGTGGGAACGGGGCGGGTGACGTAGGGCGCGATCAAGCTTAT 121 CGATACCGTCGAAACTTGTTTATTGCAGCTTATAATGGTTACAAATAAAGCAA†AGCATC 181 ACAAATTTCACAAATAAAGCATTTTTTTCACTGCATTCTAGTTGTGGTTTGTCCAAACTC ----**-----**polyA----**---**241 ATCAATGTATCTTATCATGTCTGGATCCGCGCCGCTAGCGATATCGGATCCCGGTCGACT 301 GAAAATGAGACATATTATCTGCCACGGAGGTGTTATTACCGAAGAAATGGCCGCCAGTCT ------E1a------361 TTTGGACCAGCTGATCGAAGAGGTACTGGCTGATAATCTTCCACCTCCTAGCCATTTTGA -----E1d-----421 ACCACCTACCCTTCACGAACTGTATGATTTAGACGTGACGGCCCCCGAAGATCCCAACGA 481 GGAGGCGGTTTCGCAGATTTTTCCCGACTCTGTAATGTTGGCGGTGCAGGAAGGGATTGA 541 CTTACTCACTTTTCCGCCGGCGCCCGGTTCTCCGGAGCCGCCTCACCTTTCCCGGCAGCC -----R13-----601 CGAGCAGCCGGAGCAGAGCCTTGGGTCCGGTTTCTATGCCAAACCTTGTACQGGAGGT

Fig. 5



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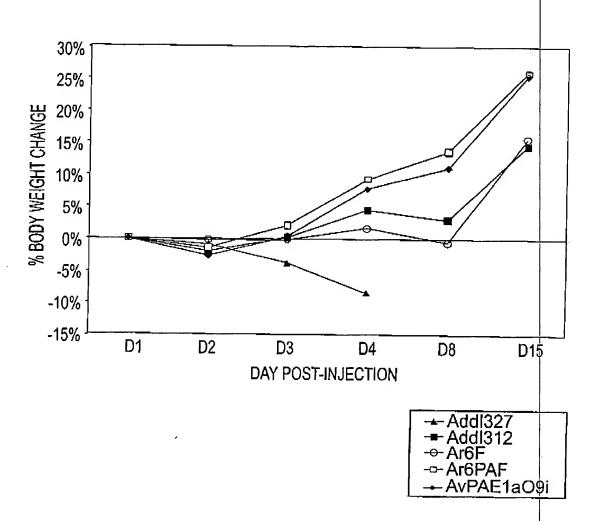


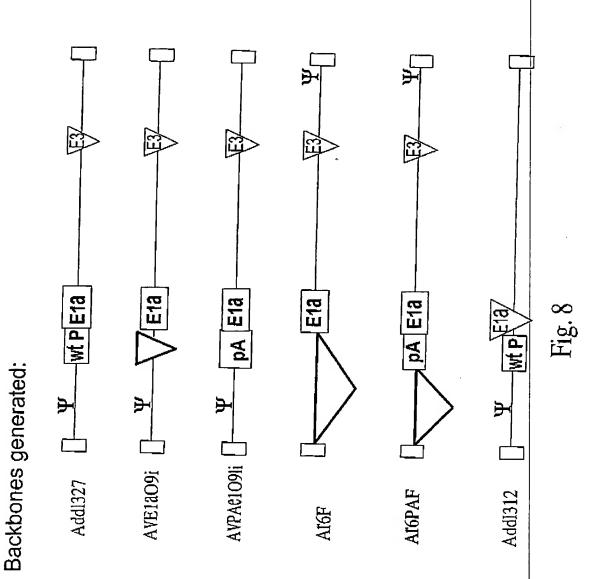
Fig. 7

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